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to say the least, and perhaps were entered through misidentification. The statement is made that "near the mouth (of the river), where a sage-brush canyon extends to the river bottom, Sage Thrashers (*Oroscoptes montanus*) were abundant, and in the low scrubby willows were the nests made of twigs and lined with rootlets." Ray does not mention the California thrasher which is abundant in the brushy parts of the same region. Further he states that "at the head of these arid canyons the merry little Canyon Wren (*Catherpes mexicanus conspersus*) shares its lonely

habitat with the rattlesnake." (!) The rock wren does not receive mention and is a species characteristic of such localities as described. The student of distribution would possibly feel more at ease if the specimen of "*Ammodramus savannarum perpallidus*" were also re-identified. Extreme care in identification of species and subspecies is becoming more and more requisite, as the study of chorology advances. A few false stations are liable to confuse the student and cause erroneous deductions, as has been already emphasized elsewhere.

The Holbøll Grebe in Montana.

BY P. M. SILLOWAY.

SWAN LAKE, the center of my activities during the oological season of 1902, lies nearly east of the head of Flathead Lake, and properly comes within the Flathead Lake region. It is separated from the larger lake by the northern end of the Mission range, and as Flathead Lake follows the base of the western slopes of the Mission Mountains, so Swan Lake lies along their eastern slopes. For about twelve miles Swan Lake parallels the larger lake, both being in sight from the crests of the intervening heights. The lake is apparently the result of glacial action, whereby a slightly sinuous furrow averaging at least a half mile wide was worn in the depression between the Mission and Swan ranges, leaving a typical mountain lake, through which Swan River glides on its way to Flathead Lake. The foot of Swan Lake is about eight miles from the University of Montana Biological Station, from which I had previously made collecting trips to the lake. Heretofore, however, the head of Swan Lake had been an enchanted region quite un-

known to the "bug-house" people, and I had long looked forward to the opportunity of the present season.

At its head the lake spreads out into a nearly circular area at least two miles in diameter, beyond which lay a submerged region of a square mile or more, overgrown thickly with old reeds and similar water weeds, the haunt of innumerable water-fowl, as I had been informed by the voracious natives. Here was a scene for a naturalist, the surroundings being rugged, pine-clad or fire-swept mountains, whose shoulders bore the accumulations of the snows of centuries. This was the forest primeval, the heart of the Lewis and Clarke forest reserve, an area including 4,572 square miles. It is needless to say that the familiar signs, "Keep out," and "No hunting with dogs or guns," are not to be seen at the place I had selected for my summer's operations.

My headquarters was the cabin of Mr. Ernest Bond, the forest-ranger who has charge of the immediate district. Among the various wildwood decorations of his cabin, one of the first that

attracted my attention was a piece of skin from the neck of a grebe. It was tacked upon the wall, showing the silvery gray of the sides of the head, the glossy black of the median portion of the head, occiput, and hind neck, and the dull rufous of the remaining portions of the neck. Here was a find, tangible evidence of the presence of *Colymbus holbaelli*, promising an interesting outcome, and I lost no time in getting among the reeds of the submerged region.

Frequently in the night there was wafted across the open water an outburst of cries from the uneasy colonists of the swamp, the voice of *C. holbaelli* mingled with the louder cackle of the loon, to which the former is not greatly unlike. It is a coarse, prolonged nasal *quonk*, the nasal quality being most pronounced, the intonation being very suggestive of the braying of a donkey. Indeed, the natives call this grebe the "jack diver," and anyone familiar with the nasal volume of tone produced by *C. holbaelli* will readily admit the appropriateness of the popular name.

The margin of the lake proper is marked by a growth of buck brush. As we approached the swamp, we could hear occasional calls from the covert of buckbrush. The birds themselves were not in sight, except two riding jauntily far along the shore near the mouth of a little mountain stream, where they were accustomed to go to take a meal of mountain trout at this very convenient larder. The birds thus seen out in the open water always kept well beyond range of the shotgun, though we frequently enjoyed shooting at them with .22 longs. They swim with greatest ease, never allowing us to decrease the distance between them and our little skiff, though seemingly they used no effort to escape us, until alarmed by the fusillade of .22's, when they dived and made long stretches under water.

As we pushed among the reeds in the swamp, the grebes could be heard

quonking in the buckbrush or beyond it, where it grew in thickets several rods in width, quite impenetrable with a boat and standing in two feet or more of water. The birds were doubtless chuckling at our disadvantage, for time and again as we skirted the bushes we were saluted by those outbursts of deriding *quonks*, and it seemed that the birds were just beyond the coverts. Upon rounding the bushes, however, we could see the grebes, always in twos, far out on the open water, showing that the call has a very marked ventriloquial effect, or else the effect was due to the conductivity of the water. Of one feature, though, there was no doubt, for as the grebes sat well erect in the water, their red necks reflected the sunlight as the birds turned this way and that in their buoyant movements, and identification would have been no surer if one of the many .22's had found a lodgment in the intended mark. *C. holbaelli* manifested a very playful disposition in their movements on the open water. They would emit an outburst of *quonk*, enough to give credit to five times the number of individuals, and then run over the water with fluttering wings and spattering feet, as though indulging in racing. Two would thus play on the water, while perhaps two more far over the water would indulge in like antics. I do not recall seeing more than two grebes together on the open water.

Finding it quite impracticable to search fully the clumps of buckbrush, out of which the birds emerged upon our invasion of the swamp, we turned our attention to the patches of old reeds here and there in the marsh, and toward the close of the first morning's work, a nest was found, June 4. It was among tall reeds in the edge of a clump surrounded by open water. Like nests of the pied-billed grebe (*Podilymbus podiceps*) that I have examined, this nest was made of black decaying grasses, with which a few pieces of green reeds

were intermingled. The rim of the mass floated about four inches above the water, and the cavity, between one and two inches deep, contained five eggs, loosely covered with material like that of the nest. These eggs were incubated to blood and more, and had acquired the brownish, baked appearance peculiar to grebes' eggs after continued incubation and exposure to the nest material.

The attractions of the swamp were not to be resisted, and the next morning, June 5, found us pushing among the reeds. Again fortune favored the collector, for persistent search of the buckbrush disclosed nest No. 2, containing four eggs, uncovered. As the size of the nest complement of *C. holboëlli* offered a good subject of investigation, the nest was left undisturbed, and revisited on June 7. No additions had been made and the four eggs were taken. This nest was in the buckbrush, about the full length of the boat, sixteen feet, in more than two feet of water. It was made in all respects like nest No. 1, though the material was piled upon coarse twigs of buckbrush, apparently brought up from the bottom. Upon the second visit the eggs were found covered. Incubation varied from blood to far advanced.

Diligent search of the swamp failed to yield further returns until June 12, when nest No. 3 of *C. holboëlli* was found, containing two eggs, uncovered. Following my usual method, I left this nest undisturbed until June 14, when it contained three eggs, uncovered, with no sign of covering material about the rim of the nest. June 17 was the fateful day for No. 3, when it was found to contain five eggs, all uncovered, one having been evidently deposited that morning. As I approached it on my usual morning round, the owners or other grebes uttered their *quonk* beyond the shrubbery, but it seemed impossible to surprise them anywhere near the nest. This structure was four inches

in height above the water, 24 inches across at the surface of the water, cavity 7.5 inches and 9 inches minor and major axes, and 2.25 inches deep. It was in two feet of water, in a very open situation among sparsely growing young reeds. These eggs were very handsome, all being fresh and having the delicate pale greenish color when washed; in my desire to have them perfect, however, I broke one in the washing process.

On June 14, I had found a new nest in the course of my morning quest. It then contained three eggs, covered; it was inspected on June 17, and as the complement had not increased, the three eggs were taken. Nest No. 4 was in the edge of a clump of old reeds, made as usual. It was 20 inches across at the water, 4 inches in height, the cavity being 6 inches and 7 inches in width at the rim, and 1.5 inches deep. The eggs were well covered in this instance, though one had been displaced from its bed and was floating among the nest material beneath the water, where it had been entangled. Incubation had advanced to a considerable extent.

June 14 was my luckiest morning, for then I had found what was to be nest No. 5, containing one egg. On June 17 it contained three eggs, which were again left for developments. The one egg was covered on June 14; the three eggs were also covered; on June 20 four eggs were the reward of my patience and repeated trips among the reeds. The fourth egg had apparently been deposited that morning, but as the fifth one was due on that day and had failed to materialize, I gathered in the four uncovered eggs. This nest was a large mass of dried decaying material anchored among thick reeds, with two very evident approaches through the reeds to open water. The height was 3.5 inches, diameter at surface of water 24 inches, cavity 7 inches across, 2 inches deep.

In my round of June 17, I had

chanced upon a nest containing two eggs, uncovered; my visit to this nest on June 20 disclosed three eggs, well covered, evidently a complete set, No. 6. This nest was a large, strong mound, made as usual, 4 inches in height, 22 inches wide at water, cavity 7 inches across and 1.5 inches deep. It was anchored in the edge of a small clump of reeds. The eggs varied from one infertile to an advanced stage of incubation.

At this time it appeared to me that I had located every nest of *C. holboelli* in the swamp, but the morning of June 18 brought a pleasant surprise in the form of nest No. 7, a new nest, among buckbrush in the edge of the swamp. It was made on depressed branches of the bushes, a large, strong mass of decayed reeds with some new material intermingled in the top. Here were four eggs, well baked, incubation far advanced; indeed, the shells appeared to contain only black feathers and bones. However, by patient applications of soda for the better part of a week, the only suitable article in camp, I made a fine set of this find.

A review of the foregoing data shows

that at least five pairs of *C. holboelli* were breeding in the region explored. I am certain that no other species of grebe was living in the swamp, and also that no more than the five pairs were inhabiting the region. No nest was found within at least one hundred yards of any other occupied nest. Seven sets of eggs were taken, as follows: June 4, five eggs, loosely covered, incubated to blood; June 7, four eggs, covered, incubated to blood; June 17, five eggs, uncovered, fresh, likely a second set; June 17, three eggs, covered, incubated to blood; June 18, four eggs, covered, incubation almost complete; June 20, three eggs, well covered, incubated to blood; June 20, four eggs, uncovered, fresh, evidently a second set. In the majority of instances, eggs were deposited not oftener than on alternate mornings.

Thus far I have no time to give to accurate measurements of the eggs, but in preparing them for specimens there was found to be wide variation in size, as they range approximately between 2.10 and 2.50 inches in length, and 1.15 and 1.50 inches in width.

The Redwood Belt of Northwestern California.

II. LAND BIRDS. *

BY WALTER K. FISHER.

THE following list of land birds of the Redwood belt of Humboldt and Del Norte counties is by no means complete. The region is one of considerable interest, and in publishing the list I have been largely actuated by a desire to aid those Californians who are interested in geographical distribution. So far as I am aware no list of the breeding birds of this region has yet appeared. With the exception of *Ampelis cedrorum* and probably of *Melospiza cinerea phæa* all the birds are breeding species in the region. The time, circumstances, and limits of these notes have already been alluded to*. I am much indebted to Dr. T. S. Palmer for the use of a manuscript list of the birds of this region, made by him during the latter half of May and the first part of June, 1889. In each case I have accredited his records by initials. I am also indebted to Dr. C. Hart Merriam for the use of specimens in the Biological Survey collection, and to Mr. Robert Ridgway for the use of types.

*See CONDOR IV, Sept., p. 111.